

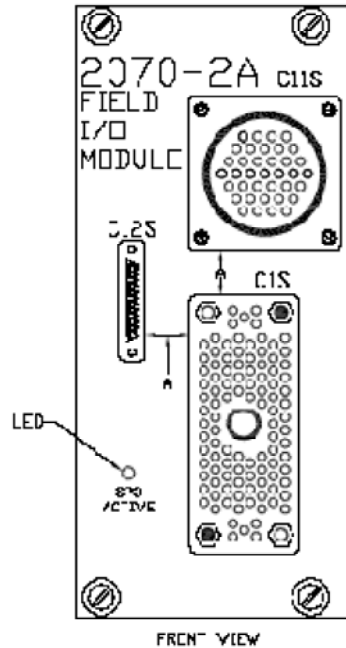
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TecNote 3035 - Customizing Auxiliary Inputs and Outputs via the C11 connector on a 2070 with APOGEE v65

The purpose of this TecNote is to help the user customize the 2070 's Auxillary C11 connector inputs and outputs via programming Apogee v65 software.

C11 Connector information

The 2070-2A module has a C11 Auxiliary connector with 37 pins. It was originally specified by CALTRANS and its purpose is to allow users to customize inputs and outputs for traffic control that are not available on the standard 104 Pin C1 connector that many Model 33x cabinets use. The following is the specification for this connector.



C11S PIN ASSIGNMENT											
PIN	FUNCTION		PIN	FUNCTION		PIN	FUNCTION		PIN	FUNCTION	
	NAME	PORT		NAME	PORT		NAME	PORT		NAME	PORT
1	056	08-1	11	I25	I4-2	21	I54	I7-7	31	DC GROUND	
2	057	08-2	12	I26	I4-3	22	I55	I7-8	32	NA	- - -
3	058	08-3	13	I27	I4-4	23	I56	I8-1	33	NA	- - -
4	059	08-4	14	DC GROUND		24	I57	I8-2	34	NA	- - -
5	060	08-5	15	I48	I7-1	25	I58	I8-3	35	NA	- - -
6	061	08-6	16	I49	I7-2	26	I59	I8-4	36	NA	- - -
7	062	08-7	17	I50	I7-3	27	I60	I8-5	37	DC GROUND	
8	063	08-8	18	I51	I7-4	28	I61	I8-6			
9	DC GROUND		19	I52	I7-5	29	I62	I8-7			
10	I24	I4-1	20	I53	I7-6	30	I63	I8-8			

Note: There are 8 output pins (Pins 1-8) that are accessed through ports O8-1 through O8-8, There are 20 input pins (pins 10-13, accessed through I4-1 through I4-4, pins 15-22, accessed through I7-1 through I7-8 and pins 23-30 that are accessed through I8-1 through I4-8.

Initializing the IO pins with Apogee

The user has to set up the I/O connectors by setting up and initializing the I/O Maps for your 2070. Remember that the Run Timer should still be OFF during this process. To set up the Initial Mapping of your I/O module, in our example we are using a 2070-2A I/O Module, access the programming via MM->1->8->9->3.

```

Main Menu
#.Controller 4.Scheduler 7.Status
2.Coordinate 5.Detectors 8.Login,Utills
3.Preempts 6.Comm

```

```

Controller
1.Phases 4.Flash 7.Enable Run
2.Unit,Ring 5.Overlaps 8.Channel,I/O
3.SDLC 6.Alarms

```

```

Channel & I/O
#.Chan 1-16 4.Chan+ 1-16 7.IO Logic
2.Chan 17-24 5.Chan+ 17-24 8.IO Viewer
3.Chan Parm 6.IO Parm 9.IO UserMap

```

```

User I/O Maps
1.Inputs
2.Outputs
3.Init Map

```

```

Initilize User I/O Maps
Init ABC with: NONE
Init D with: NONE
Init 2A with: NONE

```

The 2A module on the 2070 should be initialized with the proper mode that is mapped to your cabinet. Two common modes are Mode "0" which is the basic mapping of the Model 332 or 336 cabinet and Mode 1 is the basic mapping of the Model 330 cabinet. In this example we will assume that we have a Model 332 cabinet and therefore we will choose Mode "0".

```

Initilize User I/O Maps
Init ABC with: NONE
Init D with: NONE
Init 2A with: MODE 0
    
```

This will set up the Inputs and Outputs up with the following mapping as viewed for MM->1->8->9->1->5 for the inputs and MM->1->8->9->2->5 for the outputs. The following screens are input screens:

```

Pin Fcn Description  Pin Fcn Description
1-1   2 Veh Call 2    1-2   16 Veh Call 16
1-3   8 Veh Call 8    1-4   22 Veh Call 22
1-5   3 Veh Call 3    1-6   17 Veh Call 17
1-7   9 Veh Call 9    1-8   23 Veh Call 23
2-1   6 Veh Call 6    2-2   20 Veh Call 20
2-3   12 Veh Call 12  2-4   26 Veh Call 26
2-5  198 Pre 1 In     2-6  199 Pre 2 In
    
```

```

Pin Fcn Description  Pin Fcn Description
2-7  181 ManCtrlEnbl  2-8  189 Unused
3-1   15 Veh Call 15  3-2   1 Veh Call 1
3-3   21 Veh Call 21  3-4   7 Veh Call 7
3-5   27 Veh Call 27  3-6   13 Veh Call 13
3-7   28 Veh Call 28  3-8   14 Veh Call 14
4-1  189 Unused       4-2  189 Unused
4-3  189 Unused       +4-4 189 Unused
    
```

```

Pin Fcn Description  Pin Fcn Description
4-5   # Veh Call 4    -4-6  18 Veh Call 18
4-7   10 Veh Call 10  4-8   24 Veh Call 24
5-1  130 Ped Call 2    5-2  134 Ped Call 6
5-3  132 Ped Call 4    5-4  136 Ped Call 8
5-5  200 Pre 3 In      5-6  201 Pre 4 In
5-7  202 Pre 5 In      5-8  203 Pre 6 In
6-1  189 Unused        +6-2   5 Veh Call 5
    
```

```

Pin Fcn Description  Pin Fcn Description
6-3   1# Veh Call 19  -6-4   11 Veh Call 11
6-5   25 Veh Call 25  6-6  178 Int Advance
6-7  203 Local Flash  6-8  207 Comp StopIm
7-1  192 Alarm 1       7-2  193 Alarm 2
7-3  194 Alarm 3       7-4  195 Alarm 4
7-5  196 Alarm 5       7-6  197 Alarm 5
7-7  189 Unused        +7-8 189 Unused
    
```

Pin	Fcn	Description	Pin	Fcn	Description
7-3	194	Alarm 3	-7-4	195	Alarm 4
7-5	196	Alarm 5	7-6	197	Alarm 6
7-7	189	Unused	7-8	189	Unused
8-1	18#	Unused	8-2	189	Unused
8-3	189	Unused	8-4	189	Unused
8-5	189	Unused	8-6	189	Unused
8-7	189	Unused	8-8	189	Unused

The following screens are output screens:

Pin	Fcn	Description	Pin	Fcn	Description
1-1	14	Ch14 Red	1-2	62	Ch14 Greer
1-3	4	Ch4 Red	1-4	28	Ch4 Yellow
1-5	52	Ch4 Green	1-6	3	Ch3 Red
1-7	27	Ch3 Yellow	1-8	51	Ch3 Green
2-1	13	Ch13 Red	2-2	61	Ch13 Greer
2-3	2	Ch2 Red	2-4	26	Ch2 Yellow
2-5	50	Ch2 Green	+2-6	1	Ch1 Red

Pin	Fcn	Description	Pin	Fcn	Description
2-7	2#	Ch1 Yellow	-2-8	49	Ch1 Green
3-1	16	Ch16 Red	3-2	64	Ch16 Green
3-3	8	Ch8 Red	3-4	32	Ch8 Yellow
3-5	56	Ch8 Green	3-6	7	Ch7 Red
3-7	31	Ch7 Yellow	3-8	55	Ch7 Green
4-1	15	Ch15 Red	4-2	63	Ch15 Green
4-3	6	Ch6 Red	+4-4	30	Ch6 Yellow

Pin	Fcn	Description	Pin	Fcn	Description
4-5	5#	Ch6 Green	-4-6	5	Ch5 Red
4-7	29	Ch5 Yellow	4-8	53	Ch5 Green
5-1	37	Ch13 Yellow	5-2	39	Ch15 Yellow
5-3	38	Ch14 Yellow	5-4	40	Ch16 Yellow
5-5	42	Ch18 Yellow	5-6	41	Ch17 Yellow
5-7	115	Not Used	5-8	114	Watchdog
6-1	18	Ch18 Red	+6-2	66	Ch18 Green

Pin	Fcn	Description	Pin	Fcn	Description
6-3	1#	Ch12 Red	-6-4	36	Ch12 Yellow
6-5	60	Ch12 Green	6-6	11	Ch11 Red
6-7	35	Ch11 Yellow	6-8	59	Ch11 Green
7-1	17	Ch17 Red	7-2	65	Ch17 Green
7-3	10	Ch10 Red	7-4	34	Ch10 Yellow
7-5	58	Ch10 Green	7-6	9	Ch9 Red
7-7	33	Ch9 Yellow	+7-8	57	Ch9 Green

Pin	Fcn	Description	Pin	Fcn	Description
7-3	10	Ch10 Red	-7-4	34	Ch10 Yellow
7-5	58	Ch10 Green	7-6	9	Ch9 Red
7-7	33	Ch9 Yellow	7-8	57	Ch9 Green
8-1	11#	Not Used	8-2	115	Not Used
8-3	115	Not Used	8-4	115	Not Used
8-5	115	Not Used	8-6	115	Not Used
8-7	115	Not Used	8-8	115	Not Used

Each IO pin can be assigned a specific function. As you can see the initialization has placed default functions for each input and output pin.

Input and Output Function Tables

The following table describes the various **INPUT** functions and their numbers.

Func	Input	Func	Input	Func	Input	Func	Input	Func	Input
0	Unused	50	Veh Call 50	100	Veh Chng 36	150	Ped Omit 6	200	Pre 3 In
1	Veh Call 1	51	Veh Call 51	101	Veh Chng 37	151	Ped Omit 7	201	Pre 4 In
2	Veh Call 2	52	Veh Call 52	102	Veh Chng 38	152	Ped Omit 8	202	Pre 5 In
3	Veh Call 3	53	Veh Call 53	103	Veh Chng 39	153	Ph Omit 1	203	Pre 6 In
4	Veh Call 4	54	Veh Call 54	104	Veh Chng 40	154	Ph Omit 2	204	Pre 7 In
5	Veh Call 5	55	Veh Call 55	105	Veh Chng 41	155	Ph Omit 3	205	Pre 8 In
6	Veh Call 6	56	Veh Call 56	106	Veh Chng 42	156	Ph Omit 4	206	Cab Flash
7	Veh Call 7	57	Veh Call 57	107	Veh Chng 43	157	Ph Omit 5	207	Comp StopTm
8	Veh Call 8	58	Veh Call 58	108	Veh Chng 44	158	Ph Omit 6	208	Local Flash
9	Veh Call 9	59	Veh Call 59	109	Veh Chng 45	159	Ph Omit 7	209	TBC Input
10	Veh Call 10	60	Veh Call 60	110	Veh Chng 46	160	Ph Omit 8	210	Dim Enable
11	Veh Call 11	61	Veh Call 61	111	Veh Chng 47	161	R1 Frc Off	211	Auto Flash
12	Veh Call 12	62	Veh Call 62	112	Veh Chng 48	162	R1 Stop Tim	212	Alt Seq A
13	Veh Call 13	63	Veh Call 63	113	Veh Chng 49	163	R1 Inh Max	213	Alt Seq B
14	Veh Call 14	64	Veh Call 64	114	Veh Chng 50	164	R1 Red Rest	214	Alt Seq C
15	Veh Call 15	65	Veh Chng 1	115	Veh Chng 51	165	R1 PedRecyc	215	Alt Seq D
16	Veh Call 16	66	Veh Chng 2	116	Veh Chng 52	166	R1 Max II	216	Plan A
17	Veh Call 17	67	Veh Chng 3	117	Veh Chng 53	167	R1 OmtRdClr	217	Plan B
18	Veh Call 18	68	Veh Chng 4	118	Veh Chng 54	168	Non-Act I	218	Plan C
19	Veh Call 19	69	Veh Chng 5	119	Veh Chng 55	169	R2 Frc Off	219	Plan D
20	Veh Call 20	70	Veh Chng 6	120	Veh Chng 56	170	R2 Stop Tim	220	Addr Bit 0
21	Veh Call 21	71	Veh Chng 7	121	Veh Chng 57	171	R2 Inh Max	221	Addr Bit 1
22	Veh Call 22	72	Veh Chng 8	122	Veh Chng 58	172	R2 Red Rest	222	Addr Bit 2
23	Veh Call 23	73	Veh Chng 9	123	Veh Chng 59	173	R2 PedRecyc	223	Addr Bit 3
24	Veh Call 24	74	Veh Chng 10	124	Veh Chng 60	174	R2 Max II	224	Addr Bit 4
25	Veh Call 25	75	Veh Chng 11	125	Veh Chng 61	175	R2 OmtRdClr	225	Offset 1
26	Veh Call 26	76	Veh Chng 12	126	Veh Chng 62	176	Non-Act II	226	Offset 2
27	Veh Call 27	77	Veh Chng 13	127	Veh Chng 63	177	Ext Start	227	Offset 3
28	Veh Call 28	78	Veh Chng 14	128	Veh Chng 64	178	Int Advance	228	33x Flash Sense
29	Veh Call 29	79	Veh Chng 15	129	Ped Call 1	179	IndLampCtrl	229	33x CMU Stop
30	Veh Call 30	80	Veh Chng 16	130	Ped Call 2	180	Min Recall	230	GateMode0
31	Veh Call 31	81	Veh Chng 17	131	Ped Call 3	181	ManCtrlEnbl	231	GateMode1
32	Veh Call 32	82	Veh Chng 18	132	Ped Call 4	182	Mode Bit A	232	GateMode2
33	Veh Call 33	83	Veh Chng 19	133	Ped Call 5	183	Mode Bit B	233	GateMode3
34	Veh Call 34	84	Veh Chng 20	134	Ped Call 6	184	Mode Bit C	234	GateOpen1
35	Veh Call 35	85	Veh Chng 21	135	Ped Call 7	185	Test A	235	GateClose1
36	Veh Call 36	86	Veh Chng 22	136	Ped Call 8	186	Test B	236	GateOpen2
37	Veh Call 37	87	Veh Chng 23	137	Hold 1	187	Test C	237	GateClose2
38	Veh Call 38	88	Veh Chng 24	138	Hold 2	188	WalkRestMod	238	Reserved
39	Veh Call 39	89	Veh Chng 25	139	Hold 3	189	Unused	239	Reserved
40	Veh Call 40	90	Veh Chng 26	140	Hold 4	190	Free	240	Logic1
41	Veh Call 41	91	Veh Chng 27	141	Hold 5	191	Flash In	241	Logic2
42	Veh Call 42	92	Veh Chng 28	142	Hold 6	192	Alarm 1	242	Logic3

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43	Veh Call 43	93	Veh Chng 29	143	Hold 7	193	Alarm 2	243	Logic4
44	Veh Call 44	94	Veh Chng 30	144	Hold 8	194	Alarm 3	244	Logic5
45	Veh Call 45	95	Veh Chng 31	145	Ped Omit 1	195	Alarm 4	245	Logic6
46	Veh Call 46	96	Veh Chng 32	146	Ped Omit 2	196	Alarm 5	246	Logic7
47	Veh Call 47	97	Veh Chng 33	147	Ped Omit 3	197	Alarm 6	247	Logic8
48	Veh Call 48	98	Veh Chng 34	148	Ped Omit 4	198	Pre 1 In	248	Logic9
49	Veh Call 49	99	Veh Chng 35	149	Ped Omit 5	199	Pre 2 In	249	Logic10
Func	Input	Func	Input	Func	Input	Func	Input	Func	Input
250	Reserved	260	Ped Call 13	270	Hold 15	280	Ph Omit 9	290	Reserved
251	Reserved	261	Ped Call 14	271	Hold 16	281	Ph Omit 10	291	Reserved
252	Reserved	262	Ped Call 15	272	Ped Omit 9	282	Ph Omit 11	292	Reserved
253	Reserved	263	Ped Call 16	273	Ped Omit 10	283	Ph Omit 12	293	Reserved
254	False	264	Hold 9	274	Ped Omit 11	284	Ph Omit 14	294	Reserved
255	True	265	Hold 10	275	Ped Omit 12	285	Ph Omit 14	295	Reserved
256	Ped Call 9	266	Hold 11	276	Ped Omit 13	286	Ph Omit 15	296	Reserved
257	Ped Call 10	267	Hold 12	277	Ped Omit 14	287	Ph Omit 16	297	Reserved
258	Ped Call 11	268	Hold 13	278	Ped Omit 15	288	Reserved	298	Reserved
259	Ped Call 12	269	Hold 14	279	Ped Omit 16	289	Reserved	299	Reserved

The following table describes the various ***OUTPUT*** functions and their numbers.

Func	Output	Func	Output	Func	Output	Func	Output	Func	Output
0	Unused	50	Ch2 Green	100	R2 Status A	150	Reserved	200	Reserved
1	Ch1 Red	51	Ch3 Green	101	R2 Status B	151	Reserved	201	Reserved
2	Ch2 Red	52	Ch4 Green	102	R2 Status C	152	Reserved	202	Reserved
3	Ch3 Red	53	Ch5 Green	103	Special 1	153	Reserved	203	Reserved
4	Ch4 Red	54	Ch6 Green	104	Special 2	154	Reserved	204	Reserved
5	Ch5 Red	55	Ch7 Green	105	Special 3	155	Reserved	205	Reserved
6	Ch6 Red	56	Ch8 Green	106	Special 4	156	Reserved	206	Reserved
7	Ch7 Red	57	Ch9 Green	107	Special 5	157	Reserved	207	Reserved
8	Ch8 Red	58	Ch10 Green	108	Special 6	158	Reserved	208	Reserved
9	Ch9 Red	59	Ch11 Green	109	Special 7	159	Reserved	209	Reserved
10	Ch10 Red	60	Ch12 Green	110	Special 8	160	Reserved	210	Reserved
11	Ch11 Red	61	Ch13 Green	111	Fault Mon	161	Reserved	211	Reserved
12	Ch12 Red	62	Ch14 Green	112	Voltage Mon	162	Reserved	212	Reserved
13	Ch13 Red	63	Ch15 Green	113	Flash Logic	163	Reserved	213	Reserved
14	Ch14 Red	64	Ch16 Green	114	Watchdog	164	Reserved	214	Reserved
15	Ch15 Red	65	Ch17 Green	115	Not Used	165	Reserved	215	Reserved
16	Ch16 Red	66	Ch18 Green	116	Pre Stat 1	166	Reserved	216	Reserved
17	Ch17 Red	67	Ch19 Green	117	Pre Stat 2	167	Reserved	217	Reserved
18	Ch18 Red	68	Ch20 Green	118	Pre Stat 3	168	Reserved	218	Reserved
19	Ch19 Red	69	Ch21 Green	119	Pre Stat 4	169	Reserved	219	Reserved
20	Ch20 Red	70	Ch22 Green	120	Pre Stat 5	170	Reserved	220	Reserved
21	Ch21 Red	71	Ch23 Green	121	Pre Stat 6	171	Reserved	221	Reserved
22	Ch22 Red	72	Ch24 Green	122	TBCAux/Pre1	172	Reserved	222	Reserved
23	Ch23 Red	73	Ph 1 Check	123	TBCAux/Pre2	173	Reserved	223	Reserved
24	Ch24 Red	74	Ph 2 Check	124	LdSwchFlsh	174	Reserved	224	Reserved
25	Ch1 Yellow	75	Ph 3 Check	125	TBC Aux 1	175	Reserved	225	Reserved
26	Ch2 Yellow	76	Ph 4 Check	126	TBC Aux 2	176	Reserved	226	Reserved
27	Ch3 Yellow	77	Ph 5 Check	127	TBC Aux 3	177	Reserved	227	Reserved
28	Ch4 Yellow	78	Ph 6 Check	128	Free/Coord	178	Reserved	228	Reserved
29	Ch5 Yellow	79	Ph 7 Check	129	Time plan A	179	Reserved	229	Reserved
30	Ch6 Yellow	80	Ph 8 Check	130	Time plan B	180	Reserved	230	GateOpen1
31	Ch7 Yellow	81	Ph 1 Next	131	Time plan C	181	Reserved	231	GateClose1
32	Ch8 Yellow	82	Ph 2 Next	132	Time plan D	182	Reserved	232	GateOpen2
33	Ch9 Yellow	83	Ph 3 Next	133	Offset Out1	183	Reserved	233	GateClose2
34	Ch10 Yellow	84	Ph 4 Next	134	Offset Out2	184	Reserved	234	Reserved
35	Ch11 Yellow	85	Ph 5 Next	135	Offset Out3	185	Reserved	235	Reserved
36	Ch12 Yellow	86	Ph 6 Next	136	Auto Flash	186	Reserved	236	Reserved
37	Ch13 Yellow	87	Ph 7 Next	137	PreemptActv	187	Reserved	237	Reserved
38	Ch14 Yellow	88	Ph 8 Next	138	Reserved	188	Reserved	238	Reserved
39	Ch15 Yellow	89	Phase 1 On	139	Reserved	189	Reserved	239	Reserved
40	Ch16 Yellow	90	Phase 2 On	140	Audible Ped 2	190	Reserved	240	Logic1
41	Ch17 Yellow	91	Phase 3 On	141	Audible Ped 4	191	Reserved	241	Logic2
42	Ch18 Yellow	92	Phase 4 On	142	Audible Ped 6	192	Reserved	242	Logic3
43	Ch19 Yellow	93	Phase 5 On	143	Audible Ped 8	193	Reserved	243	Logic4

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44	Ch20 Yellow	94	Phase 6 On	144	Reserved	194	Reserved	244	Logic5
45	Ch21 Yellow	95	Phase 7 On	145	Reserved	195	Reserved	245	Logic6
46	Ch22 Yellow	96	Phase 8 On	146	Reserved	196	Reserved	246	Logic7
47	Ch23 Yellow	97	R1 Status A	147	Reserved	197	Reserved	247	Logic8
48	Ch24 Yellow	98	R1 Status B	148	Reserved	198	Reserved	248	Logic9
49	Ch1 Green	99	R1 Status C	149	Reserved	199	Reserved	249	Logic10
Func	Output	Func	Output	Func	Output	Func	Output	Func	Output
250	Reserved	260	Reserved	270	Reserved	280	Reserved	290	Reserved
251	Reserved	261	Reserved	271	Reserved	281	Reserved	291	Reserved
252	Reserved	262	Reserved	272	Reserved	282	Reserved	292	Reserved
253	Reserved	263	Reserved	273	Reserved	283	Reserved	293	Reserved
254	False	264	Reserved	274	Reserved	284	Reserved	294	Reserved
255	True	265	Reserved	275	Reserved	285	Reserved	295	Reserved
256	Reserved	266	Reserved	276	Reserved	286	Reserved	296	Reserved
257	Reserved	267	Reserved	277	Reserved	287	Reserved	297	Reserved
258	Reserved	268	Reserved	278	Reserved	288	Reserved	298	Reserved
259	Reserved	269	Reserved	279	Reserved	289	Reserved	299	Reserved

Customizing the I/O

Before you can customize the I/O, the Apogee software requires that you change the I/O mode to "USER". To change the I/O mode go to MM->1->8->6 as shown below.

```

Main Menu
#.Controller 4.Scheduler 7.Status
2.Coordinate 5.Detectors 8.Login,Utills
3.Preempts 6.Comm
  
```

```

Controller
1.Phases 4.Flash 7.Enable Run
2.Unit,Ring 5.Overlaps 8.Channel,I/O
3.SDLC 6.Alarms
  
```

```

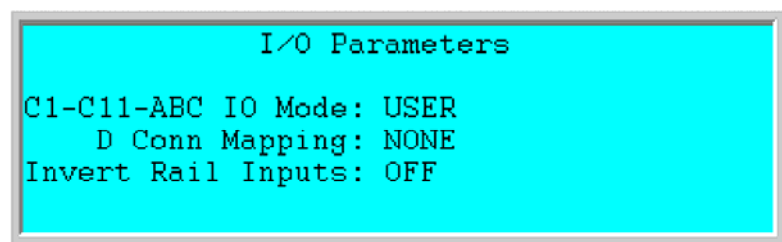
Channel & I/O
#.Chan 1-16 4.Chan+ 1-16 7.IO Logic
2.Chan 17-24 5.Chan+ 17-24 8.IO Viewer
3.Chan Parm 6.IO Parm 9.IO UserMap
  
```

```

I/O Parameters

C1-C11-ABC IO Mode: AUTO
D Conn Mapping: NONE
Invert Rail Inputs: OFF
  
```

Change the C1-C11-ABC IO Mode to "USER" as shown below:



Now you are ready to customize any I/O pin that can be accessed by the 2070-2A module, including the C11 connector

Customizing the C11 - An example

Once the above groundwork has been done, customizing any of the C11 pins is easy. As an example, let's say that you wanted to program an output that was attached to a relay to come on whenever Phase 2 is "NEXT". This chosen output will be wired to pin # 1 on the C11 connector. The following steps would be needed.

- 1) Check the C11 wiring chart under the **C11 Connector Information** Section. As the chart states pin # 1 is wired to O8-1.
- 2) As shown on the table under the **Input and Output Function Tables** section, the output function for Phase 2 "NEXT" is Function #82.
- 3) Customize the C11 output O8-1 by going to MM->1->8->9->2->5 screen and modifying output O8-1 to be active during output function #82 (Phase 2 Next) as shown below:

Pin	Fcn	Description	Pin	Fcn	Description
7-3	10	Ch10 Red	7-4	34	Ch10 Yellow
7-5	58	Ch10 Green	7-6	9	Ch9 Red
7-7	33	Ch9 Yellow	7-8	57	Ch9 Green
8-1	115	Not Used	8-2	115	Not Used
8-3	115	Not Used	8-4	115	Not Used
8-5	115	Not Used	8-6	115	Not Used
8-7	115	Not Used	8-8	115	Not Used

Modify pin O8-1 from Function 115 (Not Used) to Function 82 (Phase 2 Next).

Pin	Fcn	Description	Pin	Fcn	Description
7-3	10	Ch10 Red	7-4	34	Ch10 Yellow
7-5	58	Ch10 Green	7-6	9	Ch9 Red
7-7	33	Ch9 Yellow	7-8	57	Ch9 Green
8-1	82	Ph 2 Next	8-2	238	Not Used
8-3	115	Not Used	8-4	115	Not Used
8-5	115	Not Used	8-6	115	Not Used
8-7	115	Not Used	8-8	115	Not Used

Viewing the results

You can watch each input or output to see if it is Active or not by using the I/O Viewer menu at MM->1->8. To view the output for Phase 2 Next (that will output to Pin O8-8, which is Pin 1 of the C11 connector) go to MM->1->8->8 and look at the output column for Function 82.

Inputs			Outputs		
Fcn	Description	Stat	Description	Stat	
79	Veh Chng	15 ---- -	Ph 7 Check	----	
80	Veh Chng	16 ----	Ph 8 Check	----	
81	Veh Chng	17 ----	Ph 1 Next	----	
82	Veh Chng	18 ----	Ph 2 Next	----	
83	Veh Chng	19 ----	Ph 3 Next	----	
84	Veh Chng	20 ---- +	Ph 4 Next	----	
			Not Active		

Inputs			Outputs		
Fcn	Description	Stat	Description	Stat	
79	Veh Chng	15 ---- -	Ph 7 Check	----	
80	Veh Chng	16 ----	Ph 8 Check	----	
81	Veh Chng	17 ----	Ph 1 Next	----	
82	Veh Chng	18 ----	Ph 2 Next	Actv	
83	Veh Chng	19 ----	Ph 3 Next	----	
84	Veh Chng	20 ---- +	Ph 4 Next	----	
			Active		

Summary

Setting up specific input functions or output functions for the 2070-2A module is simple, once you understand the specific Cabinet IO pin structure as well as the Apogee programming steps as stated above.
